

REMARKS

Reconsideration of the rejection set forth in the Office Action is respectfully requested. By this Amendment claims 16-20 have been canceled without prejudice or disclaimer. Currently, claims 1-15 are pending in this application.

Rejection under 35 USC 101

Claims 16-20 were rejected under 35 USC 101 as directed to non-statutory subject matter. Applicants have canceled these claims rendering the rejection moot.

Rejection of claims under 35 USC 102

Claims 1-7 and 16-20 were rejected under 35 USC 102 as anticipated by Greuel (U.S. Patent No. 7,003,564). Claims 16-20 have been canceled rendering the rejection moot as to these claims. This rejection of claims 1-7 is respectfully traversed in view of the following arguments.

This application relates to a way to collect management information on a communication network. Conventionally, a network element operating on a network would monitor numerous aspects of its status, such as the flows of data passing through the network element and operation of the network itself. The network element may be configured to monitor thousands of different parameters. (Specification at paragraph 3). This information is stored in a Management Information Base (MIB) Id. and may be retrieved using a management protocol such as Simple Network Management Protocol (SNMP). (Specification at paragraph 21).

Unfortunately, transmission of thousands of pieces of information from a network element to a management station increases the overhead associated with managing the network element. (Specification at paragraph 4). The large amount of data may impact the scalability of the network. Additionally, where the data is specific to the underlying technology, the management system will need to have detailed information about the underlying technology to interpret the data. Id.

Applicants sought to change this paradigm by providing a way for the health of the network elements to be monitored rather than having the individual pieces of data monitored. Specifically, applicants sought to provide universal health indicators of the network elements. The raw data supporting the health indicators is obtained by the network elements and

maintained by the network elements in a MIB in a normal manner. However, rather than transmit the raw data to the management station, as was normally performed, the raw data is maintained on the network elements and used by the network elements to compute the health indicators associated with the network element. The network element then reports the health indicators to the management system rather than reporting the raw data. (Specification at paragraph 7, paragraphs 16-17). This enables less data to be transmitted from the network element to the management system and allows the management system to review status (health) information from multiple types of network elements without requiring the management system to be configured to interpret raw data of each of the types of network elements being monitored on the communication network.

Greuel teaches a system that enables the health/performance of a computer network to be monitored (Greuel at Col. 1, lines 35-36). As shown in Fig. 1 of Greuel, the environment includes a server 120 which provides internet service to web browsers 110 over network 105. (Greuel at Col. 3, lines 12-20). The server 120 includes a health monitoring module 140 that enables the service provider's customers to see how well the service provider is performing. (Greuel at Col. 3, lines 29-33).

Greuel operates differently than applicant's system, however, in that in Greuel the network elements transmit the raw MIB data to the management system, and then the management system creates the health indicators from the raw data. The raw health indicators are then provided to the customers. As discussed above, this is contrary to how applicant's system operates and is akin to how the admitted prior art operated. (See Specification at paragraphs 3-4).

For example, at Col. 3, lines 43-45, Greuel states that the nodes (routers or switches) record raw performance statistics as they operate on the network, and that the raw performance statistics "are reported in some form to the network manager 160". Greuel continues to explain that the health monitoring module accesses this raw information and uses the raw information to calculate/construct the health indicators that are displayed to the customers. (Greuel at Col. 3, lines 45-50). Greuel uses SNMP or ICMP to collect information from the node MIBs (Greuel at Col. 3, line 62 to Col. 4, line 6). Greuel explains that the type of MIB data stored and collected from the nodes includes the CPU utilization, up/down status for each interface, error rates on interfaces, buffer levels, latency or packet discard rate, and the like. (Greuel at Col. 4, lines 1-6;

See also Greuel at Col. 6, line 53 to Col. 7, line 4). As the raw data is collected by the data collector 310 it is stored in a database 335. (Greuel at Col. 6, lines 65-67). The data in the database may be queried to enable the health indicators to be created by the management system. (Greuel at Col. 6, line 67 to Col. 7, line 1).

One object that Greuel is trying to achieve is to enable raw data from multiple network elements to be combined in connection with creation of the health indicators. For example, at Col. 8, lines 3-6, Greuel explains that after a health score for each resource has been computed, the method combines the resource scores into a composite health score and outputs the composite health score. Similarly, at Col. 8, lines 45-52, Greuel states that the system can create composite scores that can be a composite of several system resource or system variable health scores that are themselves composite scores of sub-resources. Thus, Greuel is focused on combining raw data from multiple network elements and combining the data to create the health indicators that are then displayed to the customers.

To sum up the difference, then, in this application applicants were focused on reducing the amount of management information that was required to be passed from the network elements to the management system. To do this, applicants proposed to enable the network elements to generate health indicators and pass the health indicators to the management system. Greuel, by contrast, operates in the same manner as the admitted prior art in that the management system disclosed by Greuel collects raw MIB data from the network elements being managed. The network elements being managed do not provide health indicators to the management system; rather the network elements provide the raw performance data and the management system manipulates the raw data for presentation to the customers.

The preceding discussion has focused on the general differences between this application and what is disclosed in Greuel. Of course, the patentability of the claims depends on the particular wording of the claims.

Independent claim 1 recites a method that includes the step of “obtaining a network technology independent high-level health indicator from a managed network element”. Greuel does not teach or suggest this step, since the management system in Greuel does not obtain a technology independent high-level health indicator from the managed network element. Rather, Greuel obtains ordinary MIB data from the managed network elements and then creates the high-

level health indicators from the collected MIB data. Accordingly, Greuel does not teach or suggest this step of claim 1.

In connection with rejecting this claim, the Examiner cited Greuel at Col. 3, lines 40-45, and col. 4, lines 28-34 and 38-40. At Col. 3, lines 40-45, Greuel explains that the network manager communicates with remote nodes that record raw performance statistics, “which are reported in some form to the network manager 160”. This supports applicant’s interpretation of Greuel that the managed nodes report raw data, and that the management system uses the raw data to calculate the health values of the managed network element. Thus, this portion does not teach or suggest that the management system should obtain a network technology independent high-level health indicator from a managed network element. Rather, it explains that raw data should be obtained from the managed network element.

At Col 4, lines 28-34 and 38-40, Greuel explains part of the interface that may be created by the management system for presentation to the customers. This part of Greuel does not discuss the type of information that is received/obtained from the managed network element, but rather discusses how the management system may present information to the customers.

Accordingly, applicants respectfully submit that Greuel does not teach or suggest a method that includes the step of “obtaining a network technology independent high-level health indicator from a managed network element”.

Claim 1 further recites that the method includes the step of obtaining at least one of a technology independent intermediate-level health indicator and a technology independent raw health indicator related to the technology independent high-level health indicator from the managed network element if details of the high-level health indicator are required. Once again, this step recites that additional information is obtained from the managed network element. Greuel does not perform this step since Greuel collects only raw MIB data from the managed network elements. Additionally, this step is recited as being performed only “if details of the high-level health indicator are required.” Greuel collects all of the information up-front from the managed network element, and thus would not need to collect additional information from the managed network element “if details of the high-level health indicator are required.”

Applicants respectfully submit that Greuel does not teach either step of claim 1. Accordingly, applicants respectfully request that the rejection of claim 1 under 35 USC 102 be withdrawn. The dependent claims are patentable for at least the reasons set forth above.

Rejection of claims under 35 USC 103

Claims 8-15 were rejected under 35 USC 103 as unpatentable over Greuel in view of Lim (U.S. Patent Application Publication No. 2002/0002616). This rejection is respectfully traversed in view of the following arguments.

Independent claim 8 recites a network element having a processor containing control logic configured to (1) maintain a management information base containing raw measurement information relating to the state of the network element, and (2) implement health definition software configured to compute technology independent raw health indicators from values in the management information base.

Greuel does not teach or suggest a network element of this nature. As explained above, in Greuel, the network elements maintain MIBs, and raw information from the MIBs are passed to the management system. Thus, the network elements in Greuel do not implement health definition software to compute technology independent raw health indicators from the values stored in the MIB. Rather, the network elements simply store raw data in their MIB and then transmit the raw data to the management system. The Examiner contended that the network elements in Greuel operate in this manner, citing Coll. 3, lines 40-45 and col. 4, lines 28-67. However, as explained above, Greuel splits these two functions between the managed network elements and the management system. Accordingly, Greuel fails to support the rejection.

The Examiner indicated that Greuel fails to explicitly teach that the information is related to the state of the network element. Accordingly, the Examiner cited Lim as teaching a server that monitors its own state. After review, it appears that Lim fails to make up the deficiencies noted above in connection with Greuel. Stated differently, even if the Examiner is correct and Lim teaches a server that monitors its own state, the combination of Greuel and Lim would not teach or suggest a network element that (1) maintains a management information base containing raw measurement information relating to the state of the network element, and (2) implements health definition software configured to compute technology independent raw health indicators from values in the management information base. Accordingly, applicants respectfully submit that claim 8 and those claims dependent thereon are patentable over the combination of Greuel and Lim.

Conclusion

In view of these amendments and remarks, applicants respectfully submit that the claims pending in this application are in condition for allowance and respectfully request an action to that effect. If the Examiner believes a telephone interview would further prosecution of this application, the Examiner is respectfully requested to contact the undersigned at the number indicated below.

Extension of Time

Applicants request a one month extension of time to respond to the Office Action. Payment of the fee for the one month extension of time was submitted in connection with filing of the original Amendment on October 10, 2008. If any additional fees are due in connection with this filing, the Commissioner is hereby authorized to charge payment of the fees associated with this communication or credit any overpayment to Deposit Account No. 502246 (Ref. NN-16665).

Respectfully Submitted

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